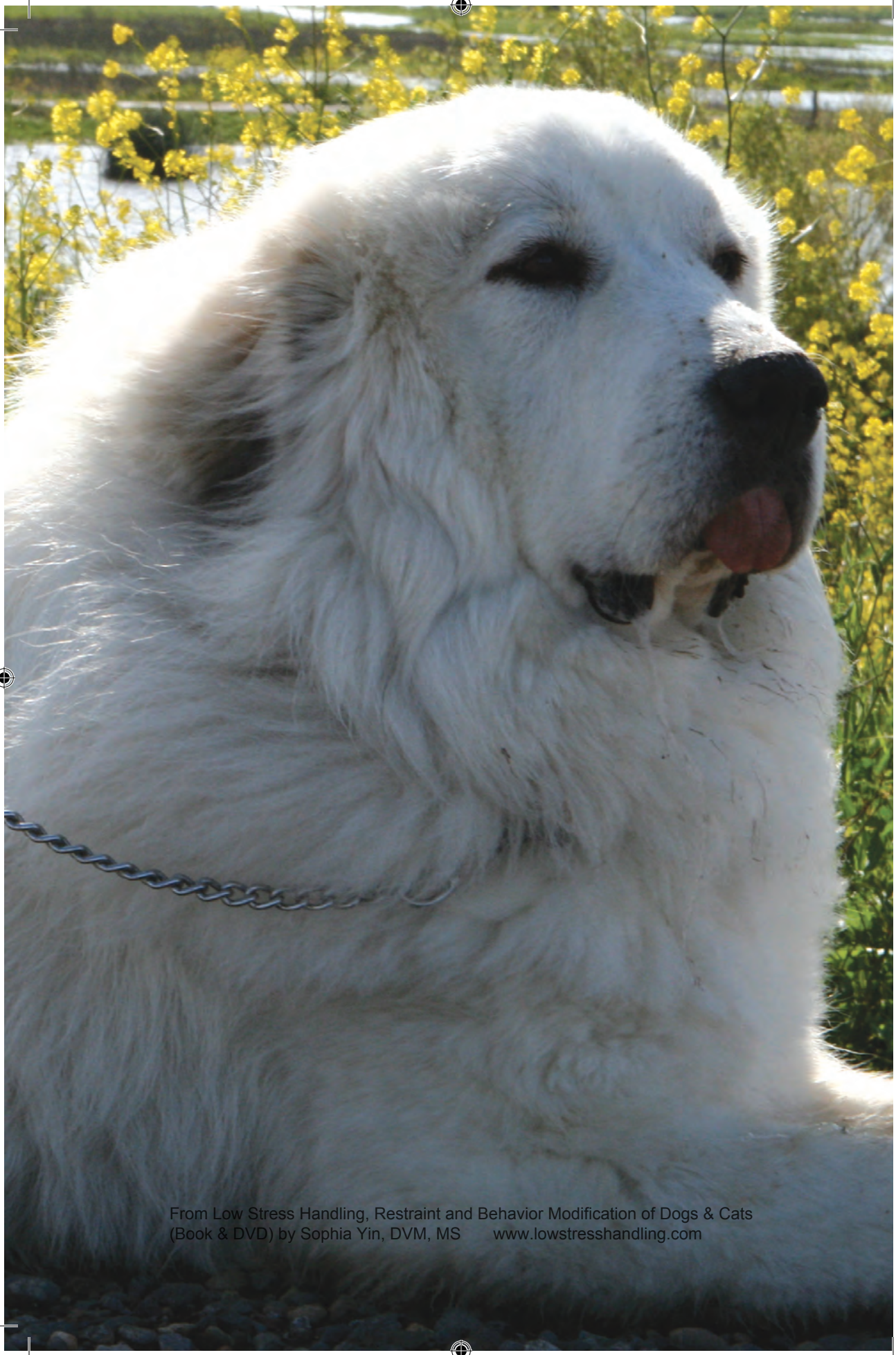


From Low Stress Handling, Restraint and Behavior Modification of Dogs & Cats
(Book & DVD) by Sophia Yin, DVM, MS www.lowstresshandling.com

2.1 Dominance Is a Relationship Between Two or More Individuals
2.2 Behavioral and Physical Traits Can Affect Dominance Rank
2.3 How the Dominance-Submissive Relationship is Maintained
2.4 Dominance-Submissive Relationships Are Different Between Dogs and Wolves
2.5 How Dominance Theory Relates to Interactions Between Humans and Animals
2.6 Problems With Dominance Theory and the Use of Force
2.7 Establishing Leadership and Modifying Behavior Without Force

CHAPTER 2. DOMINANCE vs. Unruly Behavior

"We adopted Berkeley, a male Basenji, a few weeks ago from breed rescue," explains the concerned woman on the phone. "Since then we've noticed that he growls and barks at women and girls. He is usually good with me and has bonded well with my husband," she continues. "But sometimes he gets snarly and growls at me when I'm near him. The other night we had an incident. I got out of bed in the middle of the night, and when I approached the bed to get back in, he growled at me. I did what my friend told me, which was to grab him, put him on his back, put my face up to his and growl back at him. He bit me in the face. I had to go to the hospital to get stitches."

We have all heard advice that relates dog behavior to wolf behavior in the wild. "The alpha wolf always eats first; therefore you should always eat first so your dog knows you're the leader." "Always go through the door first because an alpha would go out ahead." "If your dog growls or barks inappropriately or otherwise misbehaves, put him in his place by doing an alpha roll, where you force him onto his back until he submits. This is what the alpha wolf does to his subordinates, and it's what you should do so your dog knows you're the boss."

But are these statements true, and should they be used with all dogs?

Virtually every veterinary behaviorist, applied animal behaviorist and animal trainer agrees: The solution to better behavior in pets involves teaching the animal that the humans handling her are predictable and trustworthy—in essence, good leaders. But does learning to lead mean you have to dominate the animal or mimic what you think wolves do in the wild? In the case of Berkeley, who turned out to have fear-related aggression toward women, the results were dangerous.

About 20 to 30 years ago, social dominance theory and ideas about wolf behavior in the wild were the primary models that guided how dogs were trained. Similar ideas prevailed in dealing with horses and other companion animals, too. For dogs, training focused on punishing bad behavior by using choke chains, pinch collars and electronic collars, because in the wild wolves were seen to gain higher rank through force. In horses, other devices such as stud chains are used in a similar manner.

Since then, our understanding of dog behavior in relation to wolf behavior, as well as our understanding of dominance and hierarchies in wild animals, has become clearer. Furthermore, the science of learning has provided a better understanding of why animals behave as they do and how their behaviors can be modified. Regardless of this new information, the old misinformation regarding dominance and wolf behavior and its applications to dogs abounds. To understand where dominance theory fits in with our updated knowledge of behavior and behavior modification, and to realize which behaviors it does and does not explain in our companion animals, one first has to have a good working knowledge of dominance theory.

2.1 Dominance Is a Relationship Between Two or More Individuals

While people commonly describe dominance as a trait of an animal, it is not a personality trait. Dominance is a relationship between individuals that is established by force, aggression and submission in order to determine who has priority access to multiple resources, such as food, preferred resting spots, or mates (Bernstein 1981; Drews 1993).

For instance, when bulls are introduced to one another, they immediately fight to establish rank. The highest ranked bull is the one who wins the encounters with all the other bulls, causing them to move away (Bouissou 1972). The highest ranked bull will then have priority access to females during mating season, food, and resting and grazing areas. (Figure 2.1-A) During mating season, the others will defer or move away from females in estrus if

Fig.2.1-A: The highest ranking bull in a multi-male group has priority access to females during mating season.

Dominance is not a personality trait. Dominance is a relationship between individuals that is established by force, aggression and submission in order to determine who has priority access to multiple resources, such as food, preferred resting spots, or mates (Bernstein 1981; Drews 1993).

a higher ranked bull is near or approaching. They will, however, still attempt to sneak copulations with the estrus females when higher ranked males are not close enough to prevent such matings. As a result, in a pasture of several males and many females, the offspring will be sired by more than one bull, but the highest ranked bull will have the most matings.

Similarly, the dominant bull might chase subordinates away from a particular food source, or the subordinates might just defer automatically. But the subordinates might also sneak back to the food source when the dominant individual is not available to guard the resource. They might also be able to feed near the dominant bull if there's a barrier through which the dominant bull cannot easily reach the subordinates while they eat (Bouissou 1970, cited in Price 2002). In both cases, the subordinates are not trying to challenge the dominant bull for higher rank; they are simply using an alternate strategy for mating and obtaining other resources.

This is the general manner in which hierarchies work in animals who live in groups, including the relative of the domestic dog, the wolf. In wild wolf packs consisting of family units and in captive-raised wolf packs consisting of mixed individuals, the highest ranked—or alpha—female and male are generally the only pair who mates. The entire pack cooperates to help raise the offspring. The one mating pair per pack does not occur democratically; rather, both the alpha male and alpha female guard their mate

from copulating with subordinates, and they also prevent subordinates from mating with one another. Overall, as with other wild group-living animals, wolves fight to establish higher rank so that they can have increased access to valuable resources, including mating opportunities. As long as they are present to guard the resource, they have priority access, but others can use alternate strategies for gaining resources.

2.2 Behavioral and Physical Traits Can Affect Dominance Rank

Unlike a personality, which by definition is a set of behavioral characteristics that stays the same across different contexts (Capitanio 1999), rank changes depending on the group to which an animal belongs. If four individuals who are dominant in their own social groups are all placed together, only one will be dominant in the new group (Capitanio, written communication 2008). Certain personality traits and physical traits do, however, improve the chances that an individual can attain higher rank within a group. In some cases, the characteristic advantages have to do with size and weaponry. For instance, numerous studies have found that in species that generally fight upon introduction—such as mice, cattle and pigs (Martinez et al. 1998; Barnett et al. 1993; Bouissou 1972)—the larger individual has the advantage and often becomes dominant over the smaller individuals (Bouissou 1972; Rushen 1988). (Figure 2.2-A)

Fig.2.2-A: Factors such as size and weaponry influence an individual's ability to attain a high rank in a social group.

Similarly, multiple physical factors can interact to affect dominance rank. For instance, a study in Friesian heifers (young cows who have not yet calved) looked at groupings of four newly introduced heifers. In each grouping there was one large heifer with horns, one small heifer with horns, one large heifer without horns and one small heifer without horns. All spontaneous interactions were recorded and the winners of each aggressive interaction noted. Not surprisingly, the large heifers with horns tended to rank as number 1. The small heifers with horns and the large heifers without horns ranked similarly. The small heifers without horns ranked the lowest. The study showed that both size and weaponry interacted to give heifers the most advantage. A second experiment looked at heifers introduced in pairs to parse out the importance of horns versus size. The researchers found that when a large heifer with no horns was paired with a small heifer with horns, the heifers with horns gained higher rank 75% of the time. These results indicate that in cattle, both size and weaponry are important, but weapons are more important than size in successfully establishing higher rank.

Behavior can also affect dominance rank. In one study comparing aggression in different breeds of bulls, the bulls were introduced in groups of three (Wagnon et al. 1966). Each grouping consisted of one Hereford, one Shorthorn and one Angus bull. Despite their smaller size, the Angus bulls achieved the highest rank most of the time because they were the most aggressive. Being aggressive does not necessarily mean a higher rank, though. In the group-living song birds called great tits, more aggressive birds tend to attain higher rank when paired with an unfamiliar individual. When placed in a group, however, they don't always rank near the top. In fact, they might rank near the bottom because when they lose a fight, they tend to take longer to recover.

Social environment also plays a role in determining rank for some species. For instance, Capitanio (1985) reported that the rank a macaque monkey achieves when paired with one individual does not necessarily predict her ranking in a group with the same individuals. In Capitanio's study, he tested two groups of monkeys. Group 1 consisted of individuals artificially reared with an inanimate companion—a hobbyhorse (HH). Group 2 consisted of individuals artificially reared with a dog companion. Each individual of the HH group was paired with each of the other individuals in the HH group and a ranking of 1-6 was determined. Then all the HH macaques were placed into one large group and the ranks determined. The researchers found that each individual retained the same ranking. When the same procedure was performed with the six macaques raised by dogs, the results were different. The ranking determined by pairing all combinations of two individuals was different from the ranking when all six were placed in one big group. In both cases the hierarchy was stable, but the dog-raised macaques were able to develop alliances with other macaques and these alliances affected their group rankings. Thus, social behaviors other than aggression can influence rank in some species.

2.3 How the Dominance-Submissive Relationship Is Maintained

It is important to realize that an actual dominance-submissive relationship only exists when one individual consistently submits. Once a dominance-submissive relationship is established, it is reinforced through warning postures and ritualistic aggressive and submissive displays rather than full-blown fighting, although the ritualistic displays can be quite aggressive. The most stable relationships are those in which the submissive individual automatically defers to the dominant individual in the absence of any threatening postures by the dominant animal. For instance, the higher-ranked individual approaches a preferred resting spot directly and the subordinate moves away. Or the dominant individual approaches the subordinate to walk by and the subordinate averts his gaze.

Once a ranking is established, affiliative bonds can be forged among individuals in a group through non-aggressive gestures such as mutual grooming. (Figures 2.3-A and 2.3-B) This is one way that alliances are born. In less stable relationships or in those in which the dominant individual has an aggressive personality or is not confident

about her ability to maintain higher rank, continued robust aggressive displays occur. The dominant animal might run across an enclosure to guard even low-value resources from the subordinate animal, or she might show prolonged displays of aggression that regularly incite a fear response from the subordinate.


Fig.2.3-A


Fig.2.3-B

Photos courtesy of Ashley Carnaton

Fig.2.3-A, B: In the macaque social system, alliances are important for establishing and maintaining rank. Affiliative bonds can be forged among individuals in a group through non-aggressive gestures such as mutual grooming.

2.4 Dominance-Submissive Relationships Are Different Between Dogs and Wolves

(Video 1)

2.4.1 Dominance-submissive relationships do exist among some household pets.

With many of our household pets, including dogs and cats, dominance-submissive relationships between individuals may exist. But hierarchies are not necessarily linear, individuals can share similar ranks and clear hierarchies may not always exist. In some households, certain individuals clearly have priority access to resources and might use aggression to establish this priority. For instance, my 16-year-old female Australian Cattle Dog, Zoe, claims first access to food, sleeping areas and my attention. If these resources are available and she wants them, she will guard them from my lower-ranked dog, Jonesy, a 2-year-old male Jack Russell Terrier. (Figures 2.4-A,B,C) Sometimes she guards subtly with just a glance, and other times more aggressively with bared teeth and a snap or lunge. Jonesy always defers to her. But he will sneak around her to get to his destination or steal a food item when she's not looking. These resources are only an issue when Zoe wants them enough or has the ability to guard them from Jonesy. So, for instance, she rarely guards or takes his toys because she doesn't like to play with them. And when food or a stuffed Kong toy are already in Jonesy's possession, she lets him keep it, although she occasionally looms over him until he gives it up. In addition, we frequently have canine guests who stay for several days to several weeks. Zoe invariably establishes her top position regarding valued resources, whereas Jonesy and the guest usually share the same rank. That is, they share toys or steal toys and food equally.

2.4.2 Dogs have a tempered drive to attain high rank, compared with wolves.

So what's different about wolf and dog hierarchies? One difference is that dogs have a tempered drive to gain high rank, compared with the average wolf. At Wolf Park, where unrelated wolves live in small packs in captivity, researchers have noted that status is often gained opportunistically. Consequently, whereas dogs tend to show clear signs—or posturing—that they are vying for higher status, signs of imminent attacks in wolves are often subtle or even absent. Each interaction between wolves is a way for one wolf to test the other for weakness. As a result, the lowest-ranked wolf in the pack might attack the alpha wolf during play if he detects the alpha wolf is ill or weak. Thus, the lowest-ranked wolf could opportunistically attain the alpha position (Yin 2004; Klinghammer E., personal communication 1999). Wolf hierarchies and those of other wild animals, such as macaques, are so competitive that when an individual is removed from the group for as little as several hours to one day, he or she may have to reestablish rank upon reintroduction (Goodman P., written communication 2008). Dogs are generally much more relaxed about rank. They can easily be away from their group for weeks to months and then re-enter seamlessly.

Fig.2.4-A: Jonesy waits patiently as Zoe searches for kibble that was tossed in the grass.

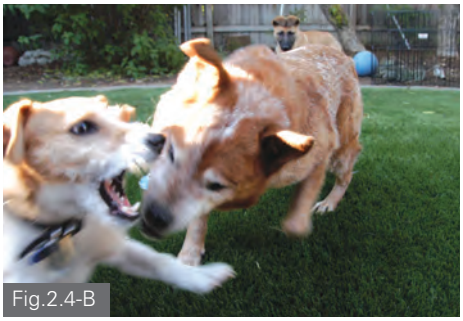


Fig.2.4-B: If Jonesy gets too close, Zoe will snap at him. Even though Jonesy always backs away, in situations where he has to dive away quickly, Jonesy barks and growls defensively while making his escape.

Fig.2.4-C: Jonesy still sneaks behind Zoe and steals food when she's not looking. By doing so, he is not testing his rank; rather, he's using an alternate strategy for obtaining treats.

It's not surprising that wolves have a more rigid ranking system and a greater desire to achieve dominance. In the wild, where wolf packs most often consist of parents and their offspring from one or more generations (although they can contain unrelated wolves), and in wolf packs raised in captivity (where wolves may or may not be related), generally only the highest ranking male and female mate and other group members help support the puppies. Note that

because packs are generally comprised of parents and their offspring rather than competing individuals, wolf biologists rarely use the term "alpha" to describe the pack leaders (Mech 1999; Mech 2008). Dogs, on the other hand, often breed promiscuously; multiple females breed with multiple males. In fact, a study of feral dogs in Italy found that all the females reproduced, allowing the group to meet its full potential for population increase. No attempts were made by adult dogs to control the reproduction of other dogs (Boitani et al. 1995). Consequently, rank in dogs might not have as much of an effect on the individual's ability to pass on his or her genes.

This difference in social systems and the related differences in drive for high rank are most likely due in part to the process through which they evolved. Contrary to popular belief, dogs probably evolved through a process of self-domestication as scavengers, rather than as hunters, over the last 15,000 years (Coppinger and Coppinger 2002). (Figure 2.4-D) According to this theory of self-domestication, people moving into settlements accumulated trash around their living areas and in dumps. Wolves with low flight distances scavenged in the trash sites and weren't scared away when people approached, while those with greater flight distances fled when people approached from as far as a mile away. The ancestral wolves who had lower flight distances were able to survive and reproduce better in environments near humans than were other wolves. Over many generations, they changed genetically into a separate population that

Fig.2.4-D: Dogs in Mexico scavenge at a dump. This strategy for finding food is common in developing countries where dogs typically survive by scavenging rather than hunting. Most of these dogs lived in people's houses at night and roamed the city during the day, so most were free-roaming dogs rather than feral dogs living without direct contact and direct feeding or sheltering by humans (Boitani et al. 1995). The phographer, Dr. Ray Coppinger, stated that although these dogs were owned by humans, they would not allow him to to pet them.

was easier to tame and could more easily live in close proximity to humans. As scavengers living off humans, they did not need to live in cohesive packs. Thus, unlike wolves, feral domestic dogs do not live in tightly knit family units that cooperate to hunt, rear young and protect communal territory—three factors that define canid packs (Mech 1970 cited in Boitani 1995). Rather, they live in what one might more appropriately call groups (Boitani 1995), with group size dependent on ecologic conditions. In some conditions, dogs often spend much time alone rather than with other group members (MacDonald and Carr 1995). The primary benefit of living in a group seems to be increased ability to defend a territory or resource, since feral dogs sometimes have to compete with wolves or other scavengers for food. Dogs also accept others into their group more willingly than do wolves.

A lower drive to attain high rank, compared to wolves, is also seen in the way dogs greet new individuals. For wild animals like wolves and many primates, the appearance of new individuals is generally seen as a threat. It is the norm for these animals to fight upon first greeting. While ritualistic posturing might be displayed during greetings and can decrease the likelihood of full-on fighting, aggression and injuries do occur. The aggression and posturing continues until a dominant–subordinate relationship is established.

Unlike wolves, socialized dogs are more likely to be friendly upon greeting. Just as humans greet with a handshake and an interest in getting to know each other, rather than an interest in attaining high rank, dogs typically greet just to determine whether the other individual will be friendly and playful. In fact, we want our dogs to be friendly with all other dogs so they can play at dog parks and get along in our human-based society. The domestic dog's sociability toward other dogs is likely due in part to neoteny, the retention of puppy-like traits. Like the foxes in the farm fox study (Chapter 1) that were bred solely for tameness and retained their juvenile physiological and behavioral traits, domesticated dogs also appear to be neotenous. They readily investigate new objects and form social bonds with unfamiliar individuals, even from other species, in the absence of specific taming techniques.

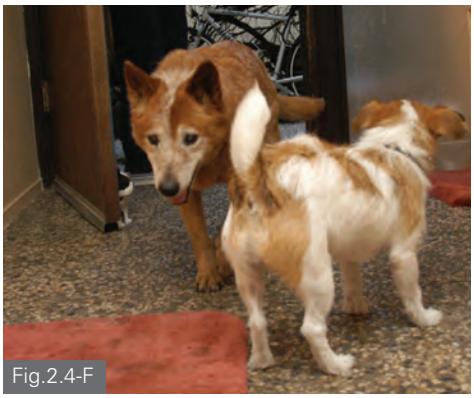
2.4.3 Dogs have a less ritualized communication system.

Along with a less rigid hierarchy and dominance-submissive relationships, dogs also have a less ritualized communication system. Wolves regularly display their status through ritualized postures and greetings. The alpha wolves are easy to recognize because they greet with head high and tail raised. Subordinates routinely approach the alpha wolves in a submissive manner—crouching with tail low, licking lips and rolling over to expose the belly (submissive roll). Note that the high-ranked wolves do not throw the subordinates into a roll; rather, the subordinates offer the submissive roll as a sign of their deference in the same way one might kneel or curtsy when greeting royalty. (Figure 2.4-E)

In contrast to wolves, dogs with established relationships do not routinely greet each other every morning in a manner that displays their rank. (Figures 2.4-F and 2.4-G) Additionally, the postures dogs are able to show vary somewhat by breed. Paedomorphic breeds (those resembling more juvenile stages of wolf development) like the Cavalier

King Charles Spaniel have a smaller communicative repertoire than breeds that more physically resemble the adult wolf (Goodwin et al. 1997).

Fig.2.4-E: Wolves greeting: When wolves greet, subordinates exhibit submissive displays while the dominant wolves take a different stance. This reinforces their positions.



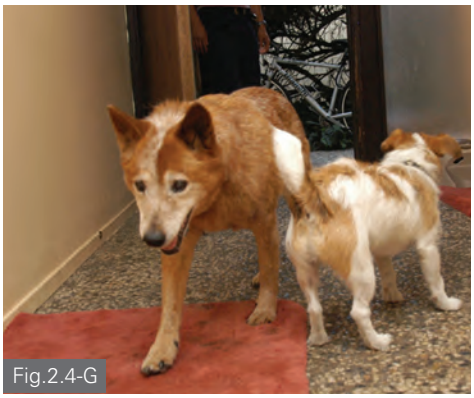


Fig.2.4-F, G: Dogs greeting: These two dogs live together. The Australian Cattle Dog is higher ranked. They barely acknowledge one another when they see each other first thing in the morning or during other reunions, such as here where Zoe arrives home.

For aggression to be defined as due to dominance, it must occur over multiple types of resources such as food, resting spots and attention from other individuals, and the aggressive animal should show signs of confidence rather then postures indicating conflict or fear. If an animal shows aggression only over items in one class, such as multiple food-like items or multiple toy-like objects, then the aggression is termed food-possession aggression or toy-possession aggression and is not related to rank.

2.5 How Dominance Theory Relates to Interactions Between Humans and Animals

While in some cases humans have problems with their pets because their pets are using aggression to guard multiple types of resources, in most cases our problem is that the pets are just unruly or misbehaving. For instance, dogs jumping on people are not vying for higher rank; they are simply jumping because they want attention and they often get it by doing so. When dogs jump on counters to steal food or cats jump up to investigate when you're not in sight, despite having been punished previously when you are present, they are using an alternate strategy for obtaining food and getting the chance to investigate. Their strategy is rewarded because they often do get the food and do get to investigate, at least for a short period. These unruly behaviors occur not because the animals are vying for rank but because the behaviors have been rewarded in the past. As such, a dominance-submission model is irrelevant for most of the behaviors we want our animals to perform, such as coming when called, walking calmly on leash or not jumping for attention.

2.5.1 Unruly behavior can lead to aggression.

Behavior does not have to be motivated by anger or aggressive intentions to lead to aggression. Frequently, normal puppy and adolescent behaviors that are rewarded can develop into aggression. For instance, puppies who are inadvertently rewarded with attention and play for nipping can turn into adult dogs who grab and bite when excited. In fact, because arousal and aggression are on a continuum, any overly aroused behaviors, such as lunging or barking, when rewarded enough in some dogs, can escalate to aggression. *(Video 2)*

2.6 Problems With Dominance Theory and the Use of Force

Even in the case of dominance-aggression or other situations where you think force can yield faster results, using force to address issues comes with many problems and unintended adverse effects (Yin 2004; AVSAB 2007). Just as you shouldn't administer a potent immunosuppressive drug without informing the owners of the potentially fatal side-effects, force should not be used unless the veterinarian, behaviorist or trainer articulates the potential negative effects to the owner. It's also imperative that the person recommending the techniques has a plan of action in case adverse effects are seen. The American Veterinary Society of Animal Behavior (2007) feels so strongly about this that it states in its position statement and guidelines on the use of punishment that, "The standard of care for veterinarians specializing in behavior is that punishment [force or aversives] is not used as a first-line or early-use treatment for behavior problems" (AVSAB 2007). They also recommend that dominance theory not be used in most cases of companion animal problems (AVSAB in press). Some adverse effects of punishment are described below.

"The standard of care for veterinarians specializing in behavior is that punishment is not used as a first-line or early-use treatment for behavior problems" (AVSAB Position Statement on Punishment, 2007).

2.6.1 Punishment must be strong enough to be effective.

First, the force or punishment (terms used synonymously here; see Chapter 5 for the scientific definitions of the terms) must be strong enough to suppress the behavior completely or else the animal will start performing the behavior more frequently again (Azrin 1960). One major mistake that owners make is starting with a level that's too low. As a result, one frequently must escalate the intensity to continue obtaining the same effect (Azrin et al. 1963). So the owner increases the intensity and the animal temporarily stops the behavior again. After a few punishments at this level, the pet becomes immune once more.

When starting with a level that's marginally low, you habituate the pet to the pain or lose the startle effect. (Figure 2.6-A) Often, you must keep escalating the intensity, until suddenly you're at a level that can be physically dangerous. For instance, electronic anti-bark collars can cause burn marks on dogs (AVSAB 2007). Choke chains can damage the trachea, increase intraocular pressure in dogs thus potentially worsening or contributing to glaucoma in susceptible breeds (Pauli et al. 2006), cause sudden collapse from non-cardiogenic pulmonary edema due to temporary upper airway obstruction (Drobatz et al. 1995) and cause nerve damage.

Even if you do achieve a high enough level of punishment, the effects might not last forever. Dominance rank is often short-lived in animal social groups. In wild animals, it typically lasts only several years or through one breeding season. This reign is relatively short

Fig.2.6-A: I once tested a remote-controlled citronella collar on a chicken-chasing Great Pyrenees named Charlie. When Charlie ran up to the chicken coop in my yard and stared in, I set off the collar, which squirted a quick jet of unpleasant citrus-smelling spray past his nose. The first squirt startled him, causing him to shake his head and back off. Several seconds later, he went right back, which earned a second squirt. By the third squirt, the aversiveness was diminishing, and by the fourth or fifth, it no longer had any effect. When we trained the alternate behavior of having Charlie focus on his owner for treats, the dog learned within minutes to ignore the chickens, even when they were out of the coop.

because rank is repeatedly tested and can be maintained only as long as individuals are physically strong enough to win aggressive encounters. (Figure 2.6-B) Thus, depending on how well a human can continue to punish with enough force using this model and how aggressive the pet is, the human might not be able to retain rank. In a family, children and elderly individuals can rarely establish high rank through force.

Fig.2.6-B: This young female wolf is growling at her mother. The tensions between the two had been mounting to the point where if one was not removed, it would likely eventually lead to a dominance fight.

2.6.2 The punishment could cause intense fear, which may generalize.

Another issue with punishment is that, while an appropriately high intensity or strong enough aversive can suppress behavior effectively, it can also cause the animal to become overly sensitive or fearful of the object, place or person associated with the aversive. This fear can then generalize to similar objects, contexts or people (Domjan 2003). (Figure 2.6-C)

Fig.2.6-C: I tested a motion-activated sprinkler system called the Scarecrow, which is designed to keep unwanted animal intruders out of a designated area. When my dog Zoe walked within its range and it gave its characteristic "shwook-chuka-chuka" sound as it sprayed, she immediately ran inside to her crate and was so disturbed that she refused to go into the yard for several days, even for meals. Months later, she heard a similar sound in a different context and became so anxious that if she had been off leash, she would have run off and been unresponsive to my cues for her to come. Zoe is not usually scared by much, so I was surprised at her response to this product.

As a result of the two adverse effects just described, using punishment requires great skill and expertise in evaluating animals. To complicate matters, the evaluation must be based on the individual animal's perceptions, rather than our own. For instance, most people are likely to believe that prong collars and electronic collars are torturous, and citronella collars, spraying with water or scaring animals with a loud sound is always more humane. But it's the animal who decides which stimulus is more aversive. When I started training my dog Zoe years ago with the old training methods (see the Introduction for more details), I used a prong collar and a choke chain. She responded with no major lasting fearful behavior. When I trained her to come when called from long distances off leash using an electronic collar—set on a low pager or static level and turned off as soon as she started to come after being called—she was happy to come running right away. But when I tried the seemingly harmless burst of water, she suddenly developed an intense fear of similar sounds.

2.6.3 Punishment can cause aggression.

One dangerous side-effect is that punishment can cause aggression. This has been established since the 1960s based on studies with rats, cats, monkeys, hamsters and other animals as subjects (Azrin et al. 1968). When researchers applied a foot shock to animals, the animals attacked their cagemates aggressively. Pain-aggression reactions have been shown to occur in a wide variety of animals in response to many different aversive events. In fact, a recent study in dogs (Herron et al. 2008) found that confrontational techniques such as hitting or kicking the dog for undesirable behavior, growling at the dog, performing an "alpha roll," staring the dog down and enforcing a dominance down frequently elicited an aggressive response from the dog. The aggression can be redirected toward inanimate objects as well as other animals, including humans, and the punishment that incites it need not be physical. (Figure 2.6-D)

Note that because children and elderly people are the least likely to be able to execute punishment at a high enough level to suppress the behavior or with the correct timing, they are the most likely to be bitten when using force.

Fig.2.6-D: This dog is fearful of other dogs and barks at them. Her owners were told to use a choke chain correction and later a pinch collar correction when that didn't work. Then they escalated to the electronic collar. The dog became more aroused and redirected her aggression toward the owner, ripping holes in his pants.

2.6.4 Punishment must occur while the animal is performing the undesirable behavior.

Timing is a challenge with all techniques, but it is particularly tough with those that involve punishment or aversives. One of the primary problems is that people tend to purposely use punishment long after the behavior has taken place, even though research has shown that punishment is not very effective when delayed (Camp et al. 1967). For instance, owners come home from work to find that their dog has raided the garbage can or chewed up the couch, and they lose their temper. While screaming in rage at their dog might make the owners feel better (positive reinforcement for them), thoughtful evaluation down the road often reveals that their rampage delivered the wrong message. If later they notice that the dog now slithers away or stays in bed instead of greeting them at the door, even when she hasn't created a mess, then the lesson she learned was that her owners are sometimes angry and out of control when they come home. Even if the dog slinks off only when there's an accident or overturned trashcan in the house, she still didn't get the message straight. Instead of learning that she shouldn't poop in the house or rummage through the rubbish, she may have just learned that poop is not permitted in the house or that trash on the floor is taboo. You can tell when she has the wrong idea because she'll crouch down fearfully or submissively, expecting punishment, even when she's not the culprit who created the mess. This incorrect learning can occur even when the delay in punishment is relatively short. Camp and his colleagues (1967) found that even a delay of 2 seconds is significantly less effective than punishment that occurs while the animal is performing the undesirable behavior. And a delay in punishment of 30 seconds is as ineffective as performing the punishment randomly with no relation to the undesirable behavior.

Punishment can still be difficult in cases where the owner plans to time the punishment correctly. Coordinating a physical punishment with enough speed to surprise the pet and enough force or intensity to get an effect is more difficult than just delivering a reward such as a treat.

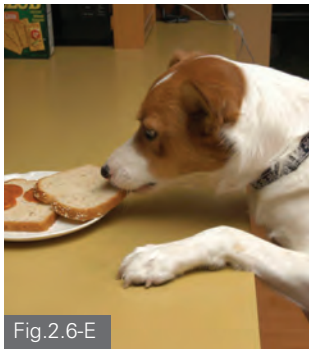


Fig.2.6-E: This dog chooses to steal food in spite of the fact that he has been reprimanded in the past. The immediate reward of eating the food outweighs the future possibility that someone may learn what has happened and punish him.

Fig.2.6-F: Dieters frequently splurge on desserts despite the high calorie count because the immediate reward outweighs the future possibility of gaining weight.

2.6.5 Immediate rewards may outweigh the future possibility of punishment.

Even when pets do understand what the punishment is for, the immediate rewards of doing something "bad" often outweigh the future possibility of punishment. (Figure 2.6-E) Indeed, in their punishment experiments Camp et al. (1967) found a decrease in suppression of undesirable behavior when punishment was delayed by 2 or 30 seconds. While poor suppression was due in part to the animals not linking the behavior to the consequence, Camp also surmised that the animals continued performing the punished behavior because with the delayed timing, they were unsure whether the punishment absolutely would occur. To understand, consider this. When people are dieting, they know to avoid copious amounts of high-calorie foods. However, because the foods taste so good, they eat them anyway to reap the immediate taste rewards. The reasoning is that it's not absolutely a given that these calories will make it to their thighs. Maybe the calories will get exercised off or the items are less fattening than they thought. However, if every time they ate desserts their thighs immediately ballooned before their eyes, they would no longer eat high-calorie desserts when on a diet. (Figure 2.6-F)

2.6.6 Punishment can strengthen the undesired behavior.

Another point that's more crucial with punishment than with other categories of learning (covered in later chapters) is that punishment must occur every time the animal performs the undesirable behavior. If the pet is only punished sometimes (on a variable schedule of punishment), she will also be receiving rewards sometimes (variable schedule of reinforcement). Rewards that occur on a variable schedule have the greatest strength. For instance, using the trash can example again, if your dog raids the garbage can, you could set up a booby trap by placing several mousetraps in the can and covering them with a light veil of trash. The next time she investigates the trash, the sudden loud snapping sounds scare her away. This punishment keeps the trashcans safe for a while, but several days later, she tries again. For the second time, the booby trap goes off just as planned. This time, she stays away for several days more. But because rubbish raiding has been so successful and fun in the past, she tries once more. This time the trash is unguarded by mousetraps, so her gamble pays off with a jackpot. While this one reinforcement for pilfering the trash might not seem like such a big deal, now the dog

is suddenly on a variable schedule of reinforcement. The raiding has now turned into a more exciting game because, like the slot machines at a casino, the outcome or prize is less predictable.

2.6.7 Punishment can suppress some behaviors, thus masking the-underlying emotional state.

Some people use punishment to decrease aggression, and it can work. However, it frequently only suppresses a pet's external warning signs, such as a growl or a raised lip, without addressing the underlying association or emotional state. The consequence later might be that instead of giving a warning, the dog suddenly bites.

2.6.8 Punishment can lead to a poor association and a poor bond.

When punished, the pet associates the punisher with unpleasant events and the bond between human and animal companion might weaken. Furthermore when punishment is a primary means for fixing behaviors, it can make the owner resentful of the pet and can cause owners to punish for prolonged periods. In fact in humans it's been reported that 70% of child abuse cases were attempts to discipline through the use of physical punishment that escalated out of control (Kadushin and Martin 1981). The proper way to use an aversive is to dole it out with no emotion and preferably use some form of remote-controlled aversive so it can be independent of any associations with the punisher.

2.6.9 Punishment fails to show the animal appropriate behavior.

Even when punishment is executed appropriately, it fails to show the animal what the desired behavior is. Without a replacement behavior, the animal could choose to perform the undesirable behavior in spite of the punishment. Additionally, punishment has been shown to be more effective when subjects are reinforced for an alternate appropriate behavior (Perry and Parke 1975).

2.7 Establishing Leadership and Modifying Behavior Without Force

If dominance theory is not a good model for understanding and modifying most behaviors in our pets, what is? Generally, what humans seek is the ability to influence their pets to willingly perform desirable behaviors (e.g., positive leadership), not dominance or merely control over resources. Maybe we want our pets to consistently come when called, or remain lying down across the room or pay attention to us on a walk rather than barking at a squirrel. Humans can choose to try to influence behavior through force, like a dictator or a bully. Or we can choose to gain leadership by rewarding desirable behavior.

According to foremost management theorist and professor Peter Drucker, consistency and predictability are key factors in leadership (Benowitz 2001). Influencing others through force is generally not recommended by management theorists for managing humans. It generates passive resistance, requires continual pressure by the manager and causes subordinates to disobey (Benowitz 2001). Similar effects are expected when force is used with pets. Instead, humans can gain influence, higher rank and priority access to resources without force by controlling all resources and using them as motivators for rewarding good behavior.

DEFINITIONS OF LEADERSHIP

In the fields of business management and sociology, leadership is a hot topic but a trait that is often ill-defined (Barker 1997, Kaiser et al. 2008). As a result, there are many different definitions.

Accepted definitions state that leadership is "the process of influencing activities of an individual or group to achieve a certain objective in a given situation" (Dubrin 1990 in Barker 1997) or "establishing direction and influencing others to follow that direction" (Benowitz 2001) or "exercising influence in a group of strangers or obtaining high status in a social system" (Kaiser et al. 2008). By these definitions, the influence or rank may be gained through coercion or through rewards. Other management theorists more specifically state that with leadership, followers must follow willingly (Knowles and Saxberg 1971, Kaiser et al. 2008).

When defined in the broader manner, different leadership styles such as "autocratic" and "participative" and "laissez-faire" may be described. The autocratic style in which the manager makes the decisions without allowing others to participate is most similar to a dominance-subordinate relationship in animals. This style of leadership is generally not recommended by management consultants and professors because it generates passive resistance, tends to require continual pressure and direction from the leader and is usually not a good tactic for getting the best performance from a team (Benowitz 2001). Additionally, those managers who rule through coercive power (the ability to punish) "most often generate resistance which may lead workers to deliberately avoid carrying out instructions or to disobey orders" (Benowitz 2001).

The method of withholding all resources from the pet and using them only to reward appropriate behaviors has been called Nothing in Life Is Free, No Free Lunch or the Learn to Earn Program, and there are various versions. All of them stress rewarding desirable behavior and removing the reward for bad behaviors. In one version (Yin 2004), the dog can first be taught to automatically sit and look at the owner for treats (kibble from her regular daily meals). That is, when the dog is hungry, the owner stands completely still with food hidden in his hand and just waits for the dog to sit—no verbal cue, no hand signal, no touching the dog—he just waits. Once the dog sits, the owner immediately gives her the treat. When the dog understands that she must choose on her own to sit in order to receive the treat that she wanted, she should be required to automatically sit and remain seated when she wants to be petted, go out the door or have her toy tossed, and for each kibble. By requiring this behavior, the dog is learning self control and to look to the owner for permission for access to a resource she wants. There is no battle of wills between dog and owner; the dog is just taught a new way to receive all of the resources that she used to get for free, and she's taught that inappropriate behaviors are not rewarded *(Video 3)*. Once the owner has decided on the rules, he must communicate the rules to the pet by reinforcing the correct behaviors immediately as they occur; i.e., within 1 second. He must also prevent the pet from receiving rewards for undesirable behaviors. For instance, when dogs want to be petted, they frequently jump on their owners instead of sitting calmly. If this happens, owners must clearly remove their attention by holding completely still, turning their head away or turning their back to the dog and then standing still. These behaviors make it clear to the dog that she is not receiving attention. But once the dog sits, the owner must immediately reward her and then continue intermittently rewarding as she is sitting so that the dog learns to remain seated.


Fig.2.6-G

Fig.2.6-G: This dog has learned to automatically say please by sitting in order to earn the privilege of going out the door. This is part of the Learn to Earn Program for building leadership skills in the human member of the animal-human team.

Leadership is established when humans

1. set clear rules for behavior;
2. communicate the rules by rewarding correct behaviors as they are occurring or within one second;
3. consistently reward these desirable behaviors and remove rewards for undesirable behaviors until the pet develops good habits.

The rules must be reinforced consistently until they become a habit for the dog in all instances where sitting is required. If the owner pets the sitting dog and the dog starts to get up, the owner must immediately remove attention or he will unintentionally reward the dog for excited, uncontrolled behavior. If the owner later sits on the floor and allows the dog to climb into his lap without first automatically sitting and waiting for a cue, he is also rewarding uncontrolled behavior. The dog must earn attention by sitting calmly every time she wants it.

Leadership is established when the human sets clear rules for behavior and effectively communicates the rules by always rewarding the correct behaviors as they occur and preventing or immediately removing rewards for undesirable behaviors. The owner must reward the desired behaviors frequently enough that they become a habit. When owners can meet these three criteria, they will be seen as predictable, dependable and trustworthy in the eyes of their pet. Now, rather than complying out of fear, pets can choose to follow human direction because doing so leads to rewards. Such a model fosters a better understanding of the underlying cause of improper behavior and leads to a strong bond between animals and humans, rather than an antagonistic approach to living with animals.

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